FRAME AND BUMPERS

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BUMPERS

TABLE OF CONTENTS

DESCRIPTION AND OPERATION

BUMPERS

DESCRIPTION

Bumpers are used at the front and rear of the vehicle. Bumpers are incorporated into the design of the front and rear fascias. They are mounted to the frame with brackets and may contain some lamp elements.

OPERATION

Bumpers are designed to protect the exterior sheet-metal in low impact situations. The bumpers are attached to the frame and provide mounting points for some optional accessories such as fog lights and tow hooks.

REMOVAL AND INSTALLATION

FRONT BUMPER

REMOVAL

(1) Open hood.
(2) Support front bumper on a suitable lifting device.
(3) Disengage wire connectors from fog lamps, if equipped.
(4) Disengage push-in fasteners attaching air deflector to bottom of bumper fascia.
(5) Pull the front wheelhouse liner back at the bumper and remove bolts attaching outer bumper brackets to frame rail (Fig. 1).
(6) Remove the bolts attaching the bumper to the inner bumper bracket.
(7) Separate front bumper with outer bracket attached from vehicle.

INSTALLATION

When the front bumper is installed, there should be a 19 mm gap between the bumper and front fender.
(1) Place the bumper on a suitable lifting device and position the bumper at the vehicle.
(2) Install the bolts attaching front bumper to inner bumper bracket. Tighten to 94 N·m (70 ft. lbs.) torque.
(3) Install the bolts attaching outer bumper brackets to the frame rail. Tighten to 94 N·m (70 ft. lbs.) torque. Ensure front wheelhouse liners are positioned correctly behind bumper.
(4) Engage wire connectors to fog lamps, if equipped.
(5) Install push-in fasteners attaching air deflector to front bumper fascia.
(6) Remove lifting device.
(7) Close hood.

FRONT BUMPER FASCIA

REMOVAL

(1) Remove the front bumper.

REMOVAL AND INSTALLATION (Continued)

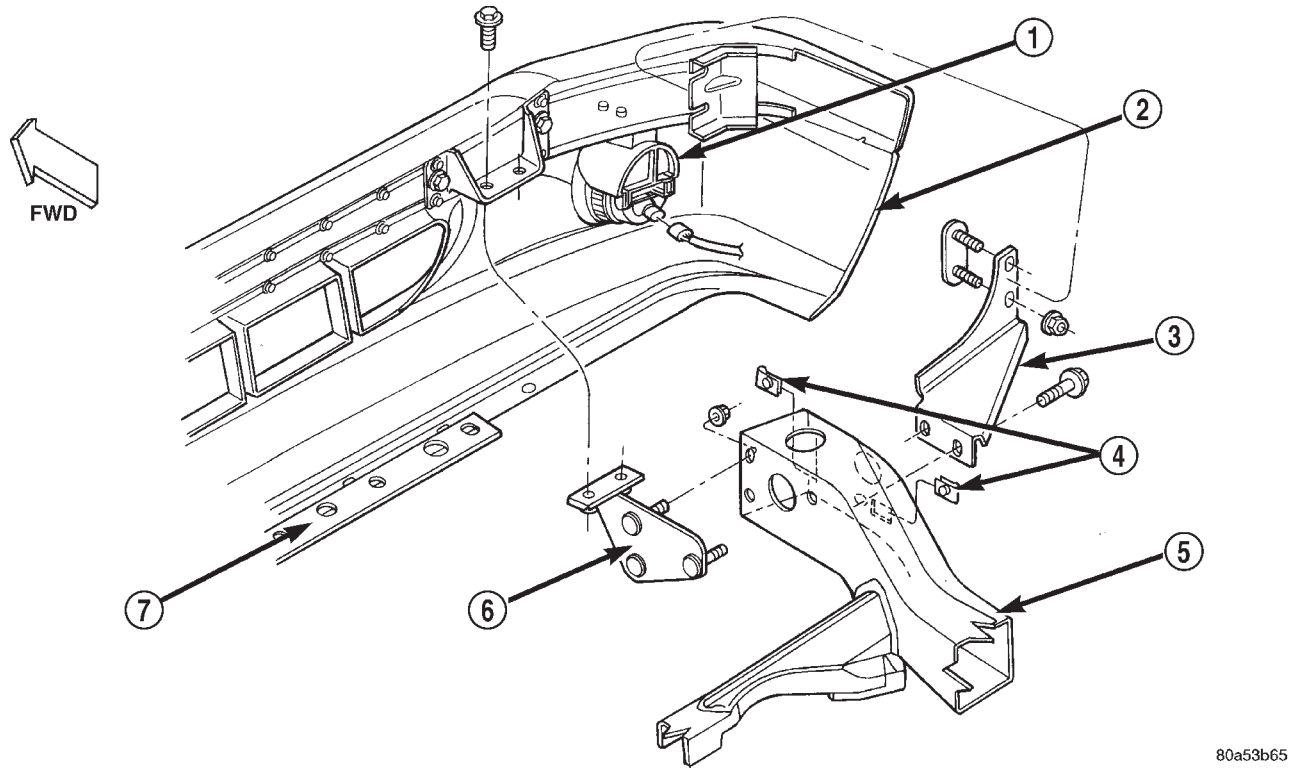

Fig. 1 Front Bumper

1 – FOG LAMP
2 – FRONT BUMPER
3 – OUTER BUMPER BRACKET
4 – U-NUT
5 – FRAME
6 – INNER BUMPER BRACKET
7 – FASCIA BRACKET

(2) Remove the bolts attaching the fascia to the bumper.
(3) Separate fascia from bumper.

INSTALLATION

(1) Position fascia on bumper.
(2) Install the bolts attaching the fascia to the bumper.
(3) Install the front bumper.

REAR BUMPER

REMOVAL

(1) Support rear bumper on a suitable lifting device.
(2) Remove bolts attaching inner bumper brackets to frame rails (Fig. 2).
(3) Disengage license plate lamp wire connector from body wire harness, if equipped.
(4) Separate rear bumper from vehicle.

INSTALLATION

(1) Place bumper on a suitable lifting device and raise into position.

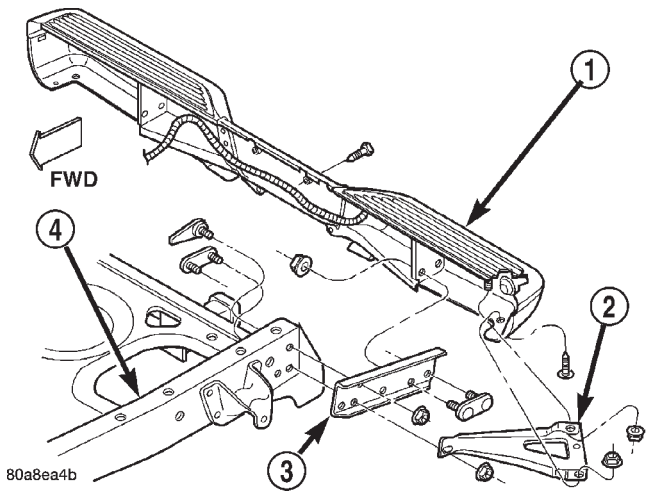

Fig. 2 Rear Bumper

1 – REAR BUMPER
2 – OUTER BRACKET
3 – INNER BRACKET
4 – FRAME

REMOVAL AND INSTALLATION (Continued)

(2) Engage license plate lamp wire connector from body wire harness, if equipped.

(3) Install bolts attaching inner bumper brackets to frame rails. Tighten to 94 N·m (70 ft. lbs.) torque.

(4) Remove lifting device.

VALANCE PANEL

REMOVAL

(1) Remove nuts attaching valance panel to bracket (Fig. 3).

(2) Disengage license plate lamp harness connector.

(3) Separate valance panel from cargo box.

INSTALLATION

(1) Position valance panel on cargo box.

(2) Engage license plate lamp harness connector.

(3) Install nuts attaching valance panel to bracket.

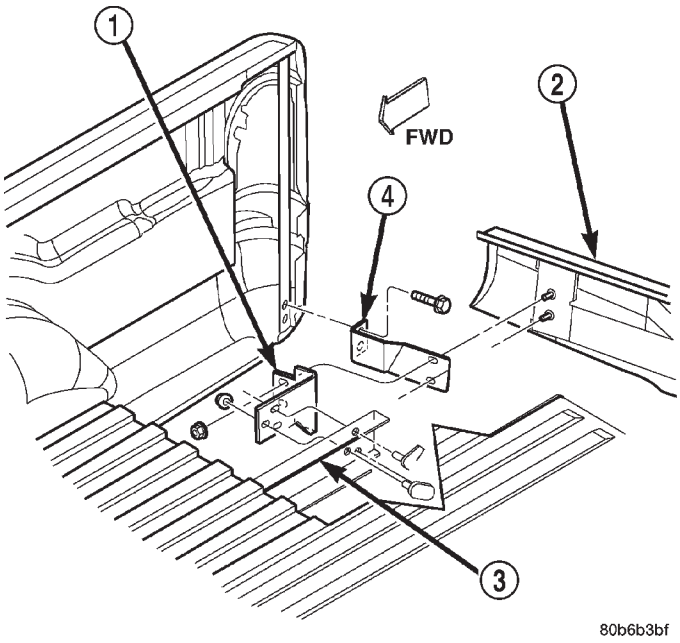

Fig. 3 Valance Panel

1 – BRACKET
2 – VALANCE PANEL
3 – FRAME
4 – BRACKET

FRAME

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DESCRIPTION AND OPERATION

FRAME

DESCRIPTION

Dakota trucks have a ladder-type frame with Box-section front rails, dropped center section and open-channel side rails in the rear (Fig. 1) and (Fig. 2).

Cross members attached to the frame side rails with rivets, welds or bolts form a ladder-type construction. Additionally, the Dakota Quad Cab uses a mass dampener located between the frame rails, immediately forward of the rear bumper. This damper is used to address NVH issues. The cab is isolated from the frame with rubber load cushions (Fig. 3) and (Fig. 4) with through-bolts. The cargo box or bed is attached to the frame with bolts (Fig. 5). Refer to Group 23, Body for cargo box service procedures.

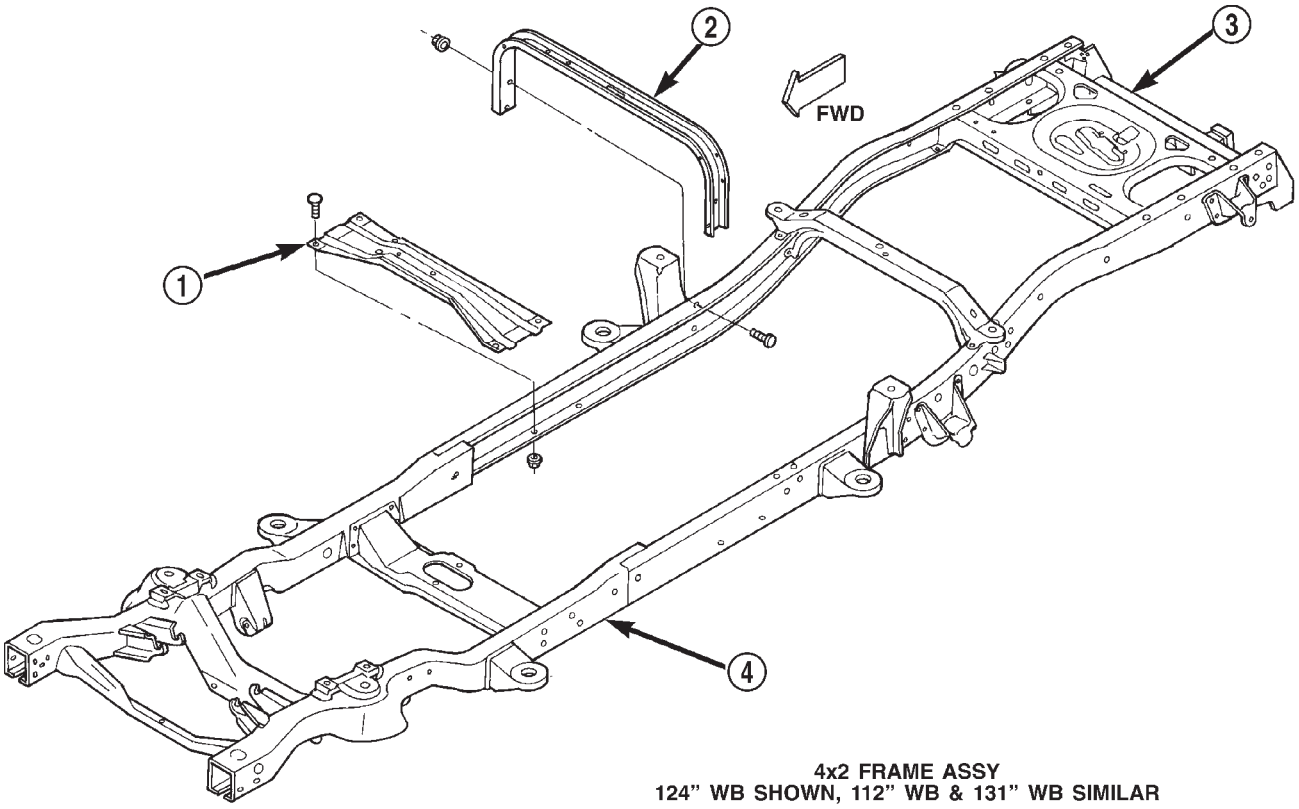


Fig. 1 4X2 Frame

1 – CENTER BEARING CROSSMEMBER
2 – FUEL TANK CROSSMEMBER
3 – TRAILER HITCH
4 – FRAME

DESCRIPTION AND OPERATION (Continued)

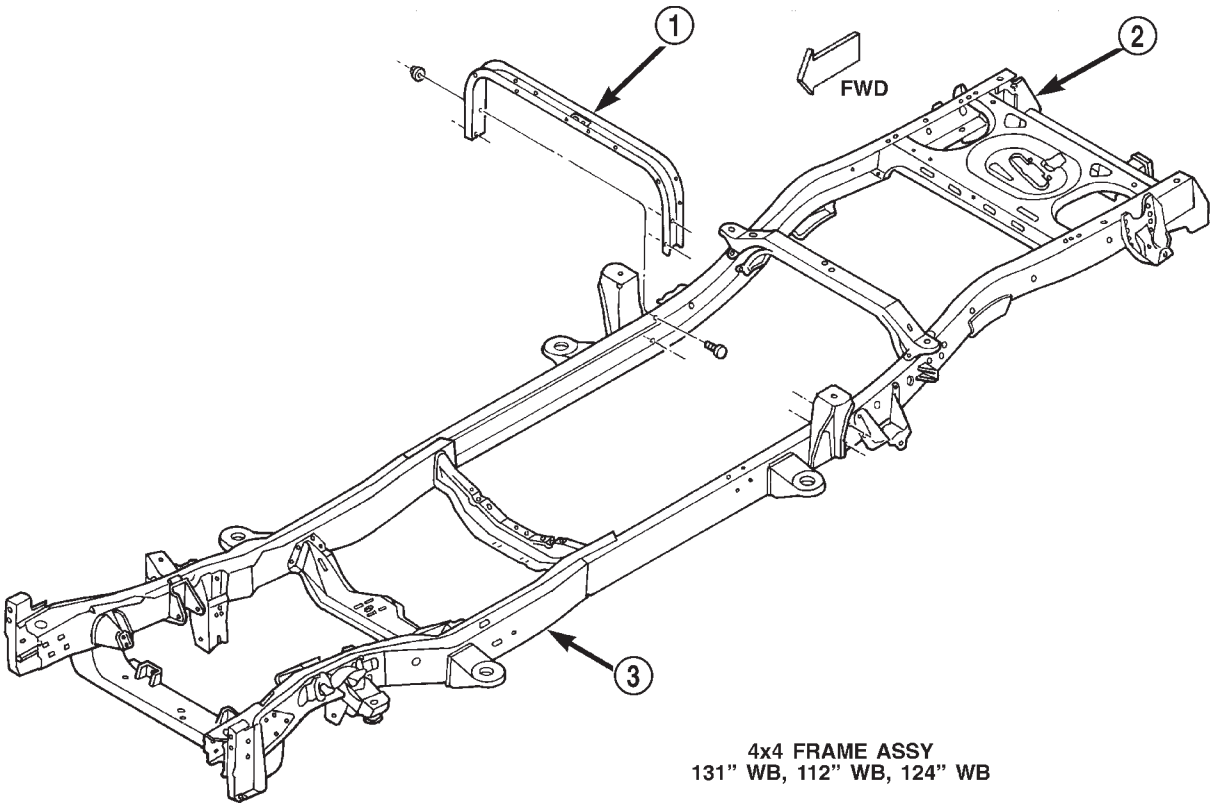


Fig. 2 4X4 Frame

1 – FUEL TANK CROSSMEMBER
2 – TRAILER HITCH
3 – FRAME

DESCRIPTION AND OPERATION (Continued)

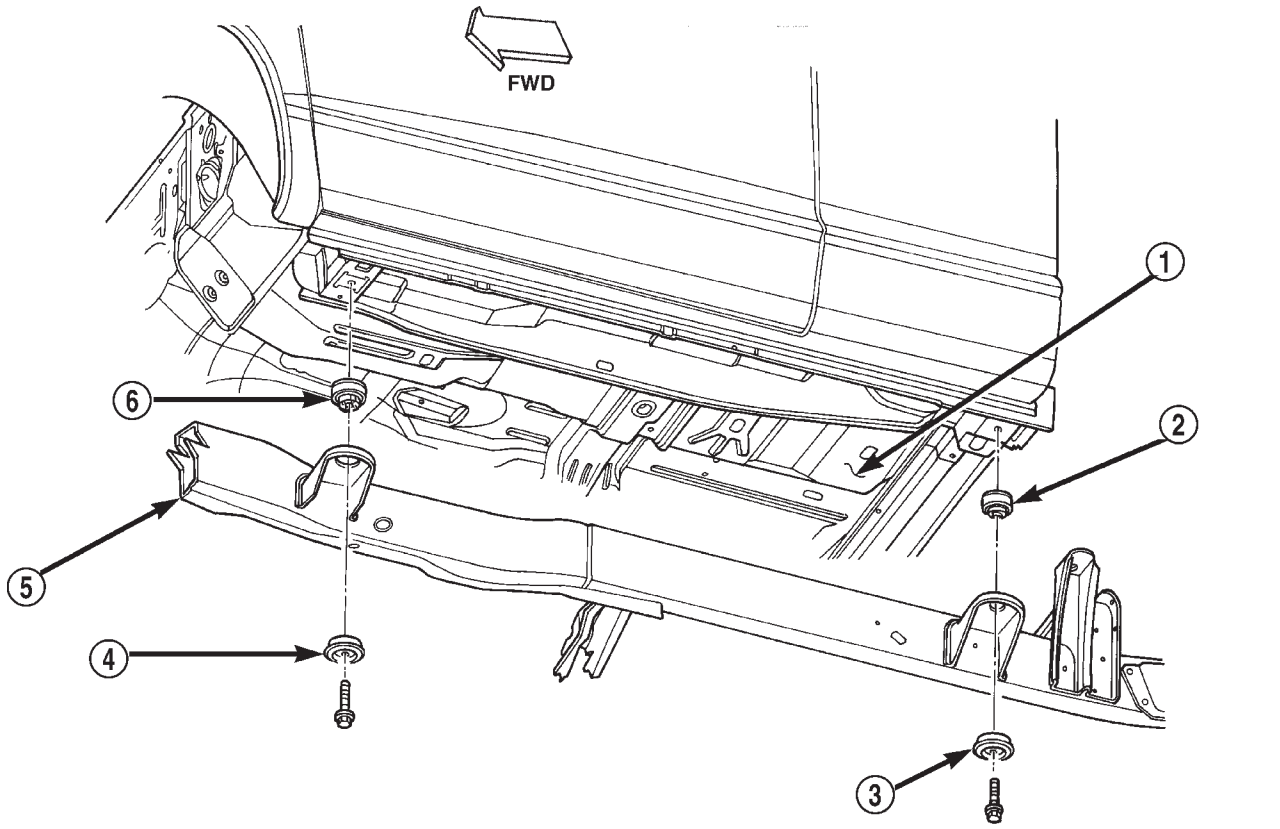


Fig. 3 Cab Mounts

1 – FLOOR PAN
2 – REAR CAB ISOLATOR
3 – UNDER CAB ISOLATOR
4 – UNDER CAB ISOLATOR
5 – FRAME
6 – FRONT CAB ISOLATOR

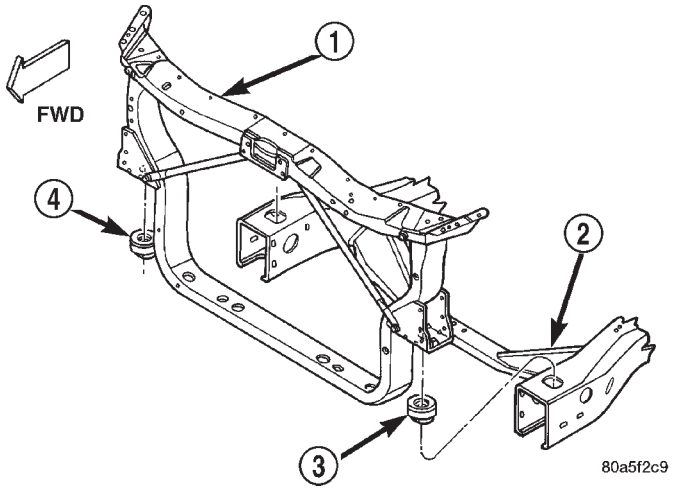


Fig. 4 Radiator Closure Panel

1 – RADIATOR CLOSURE PANEL
2 – FRAME
3 – ISOLATOR
4 – ISOLATOR

DESCRIPTION AND OPERATION (Continued)

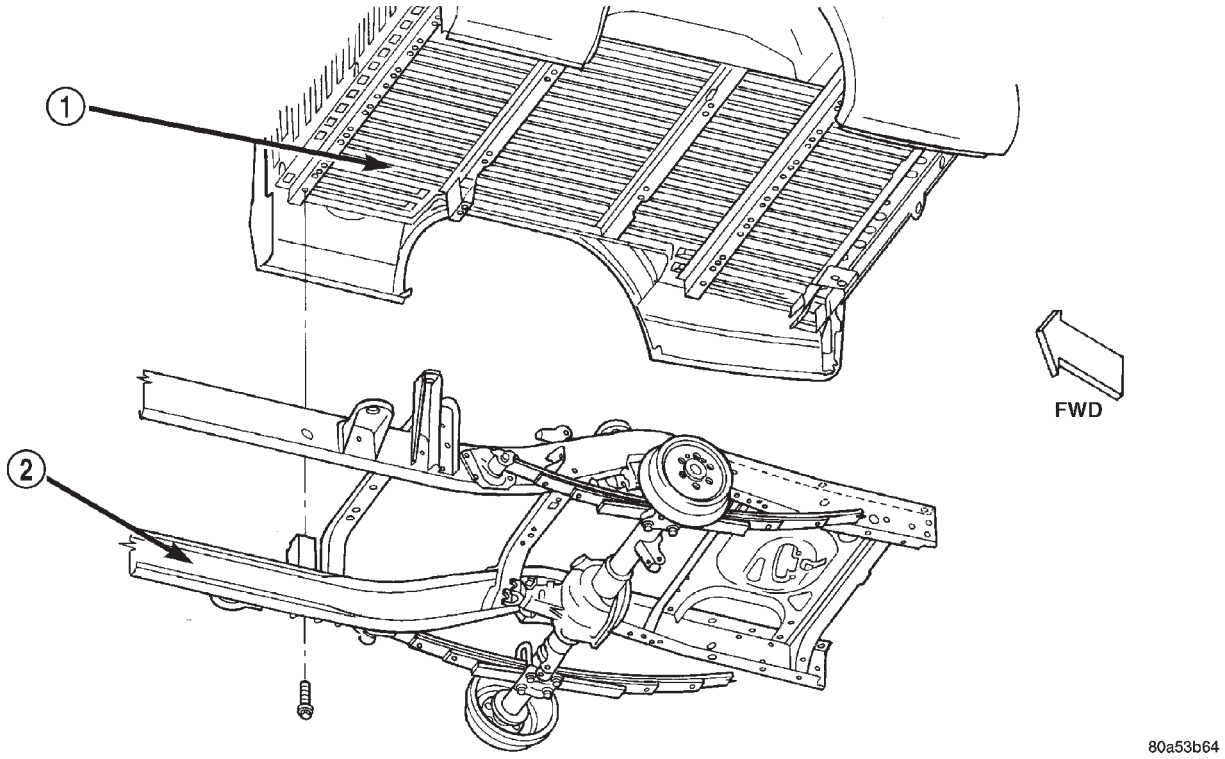


Fig. 5 Cargo Box

1 – CARGO BOX
2 – FRAME RAIL

OPERATION

The frame is designed to absorb and dissipate flexing and twisting due to acceleration, braking, cornering and road surface variances without bending when subjected to normal driving conditions. The frame is the mounting platform for the following systems and components:

- Front and rear suspension systems.
- Engine, transmission, and transfer case.
- Steering gear and linkage.
- Exhaust system and heat shields.
- Fuel cell and fuel line tubing.
- Front end sheet metal and radiator closure panel.
- Skid plate.
- Passenger cab.
- Cargo box or bed.
- Spare tire winch.
- Front and rear bumper systems.

SERVICE PROCEDURES

FRAME SERVICE

SAFETY PRECAUTIONS AND WARNINGS

WARNING: USE EYE PROTECTION WHEN GRINDING OR WELDING METAL, SERIOUS EYE INJURY CAN RESULT. BEFORE PROCEEDING WITH FRAME REPAIR INVOLVING GRINDING OR WELDING, VERIFY THAT VEHICLE FUEL SYSTEM IS NOT LEAKING OR IN CONTACT WITH REPAIR AREA, PERSONAL INJURY CAN RESULT. DO NOT ALLOW OPEN FLAME TO CONTACT PLASTIC BODY PANELS. FIRE OR EXPLOSION CAN RESULT. WHEN WELDED FRAME COMPONENTS ARE REPLACED, 100% PENETRATION WELD MUST BE ACHIEVED DURING INSTALLATION. IF NOT, DANGEROUS OPERATING CONDITIONS CAN RESULT. STAND CLEAR OF CABLES OR CHAINS ON PULLING EQUIPMENT DURING FRAME STRAIGHTENING OPERATIONS, PERSONAL INJURY CAN RESULT. DO NOT VENTURE UNDER A HOISTED VEHICLE THAT IS NOT SUPPORTED ON SAFETY STANDS, PERSONAL INJURY CAN RESULT.

SERVICE PROCEDURES (Continued)

CAUTION: Do not reuse damaged fasteners, quality of repair would be suspect. Do not drill holes in top or bottom frame rail flanges, frame rail failure can result. Do Not use softer than Grade 5 bolts to replace production fasteners, loosening or failure can result. When using heat to straighten frame components do not exceed 566°C (1050°F), metal fatigue can result. Welding the joints around riveted cross members and frame side rails can weaken frame.

FRAME STRAIGHTENING

When necessary, a conventional frame that is bent or twisted can be straightened by application of heat. The temperature must not exceed 566°C (1050°F). The metal will have a dull red glow at the desired temperature. Excessive heat will decrease the strength of the metal and result in a weakened frame.

Welding the joints around riveted cross members and frame side rails is not recommended.

A straightening repair process should be limited to frame members that are not severely damaged. The replacement bolts, nuts and rivets that are used to join the frame members should conform to the same specifications as the original bolts, nuts and rivets.

FRAME REPAIRS

DRILLING HOLES

Do not drill holes in frame side rail top and bottom flanges, metal fatigue can result causing frame failure. Holes drilled in the side of the frame rail must be at least 38 mm (1.5 in.) from the top and bottom flanges.

Additional drill holes should be located away from existing holes.

WELDING

Use MIG, TIG or arc welding equipment to repair welded frame components.

Frame components that have been damaged should be inspected for cracks before returning the vehicle to use. If cracks are found in accessible frame components perform the following procedures.

(1) Drill a hole at each end of the crack with a 3 mm (O.125 in.) diameter drill bit.

(2) Using a suitable die grinder with 3 inch cut off wheel, V-groove the crack to allow 100% weld penetration.

(3) Weld the crack.

(4) If necessary when a side rail is repaired, grind the weld smooth and install a reinforcement channel (Fig. 6) over the repaired area.

NOTE: If a reinforcement channel is required, the top and bottom flanges should be 0.250 inches narrower than the side rail flanges. Weld only in the areas indicated (Fig. 6).

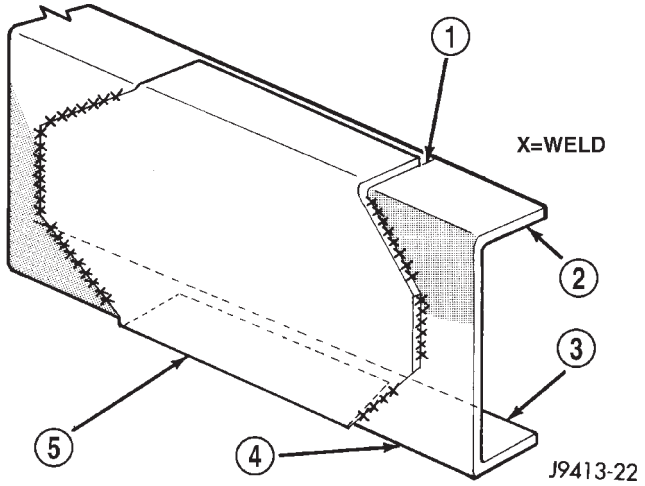


Fig. 6 Frame Reinforcement

1 – .250 IN FROM EDGE
2 – TOP FLANGE
3 – BOTTOM FLANGE
4 – FRAME RAIL
5 – FRAME REPAIR REINFORCEMENT

FRAME FASTENERS

Bolts, nuts and rivets can be used to repair frames or to install a reinforcement section on the frame. Bolts can be used in place of rivets. When replacing rivets with bolts, install the next larger size diameter bolt to assure proper fit. If necessary, ream the hole out just enough to sufficiently receive the bolt.

Conical-type washers are preferred over the split-ring type lock washers. Normally, grade-5 bolts are adequate for frame repair. **Grade-3 bolts or softer should not be used.** Tightening bolts/nuts with the correct torque, refer to the Introduction Group at the front of this manual for tightening information.

REMOVAL AND INSTALLATION

FRONT AXLE SKID PLATE

REMOVAL

(1) Position a support under the skid plate.

(2) Remove the bolts that attach the skid plate to the front crossmember (Fig. 7).

(3) Remove the bolts that attach the skid plate to the skid plate crossmember (Fig. 8).

(4) Separate the crossmember from the vehicle.

REMOVAL AND INSTALLATION (Continued)

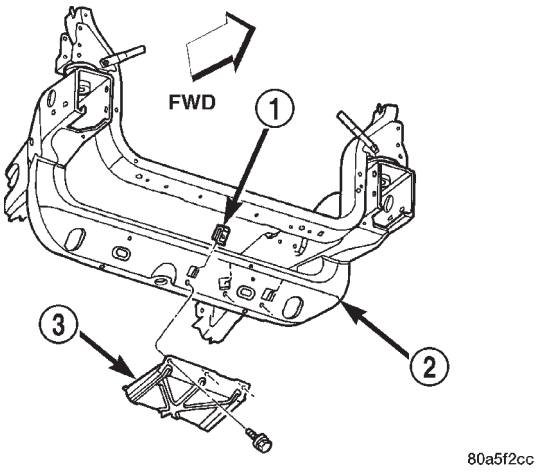


Fig. 7 Front Axle Skid Plate

1 – U-NUT
2 – FRAME
3 – SKID PLATE

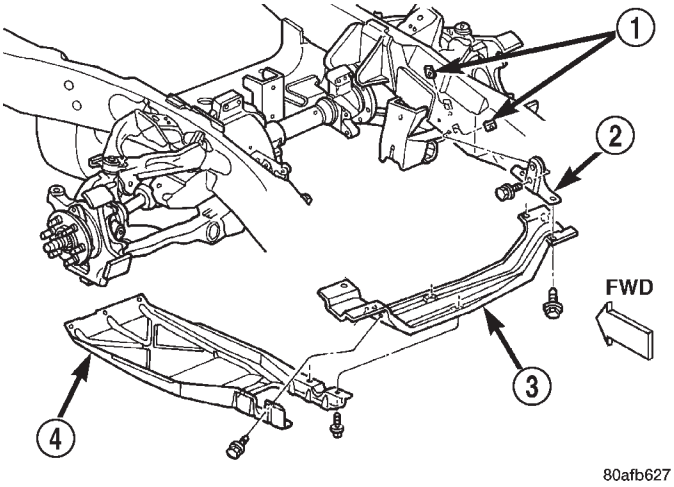


Fig. 8 Front Axle Skid Plate

1 – U-NUT
2 – BRACKET
3 – SKID PLATE CROSSMEMBER
4 – SKID PLATE

INSTALLATION

(1) Position and support the skid plate at the front crossmember.

(2) Install the bolts that attach the skid plate to the transmission crossmember. Tighten to 23 N·m (17 ft. lbs.) torque.

(3) Install the bolts that attach the skid plate to the front crossmember. Tighten to 23 N·m (17 ft. lbs.) torque.

(4) Remove the support from under the skid plate.

TRANSFER CASE SKID PLATE

REMOVAL

(1) Hoist and support vehicle on safety stands.

(2) Remove bolts attaching skid plate to crossmembers (Fig. 9).

(3) Separate skid plate from vehicle.

INSTALLATION

(1) Position skid plate on vehicle.

(2) Install bolts attaching skid plate to crossmembers. Tighten to 23 N·m (17 ft. lbs.) torque.

(3) Remove safety stands and lower vehicle.

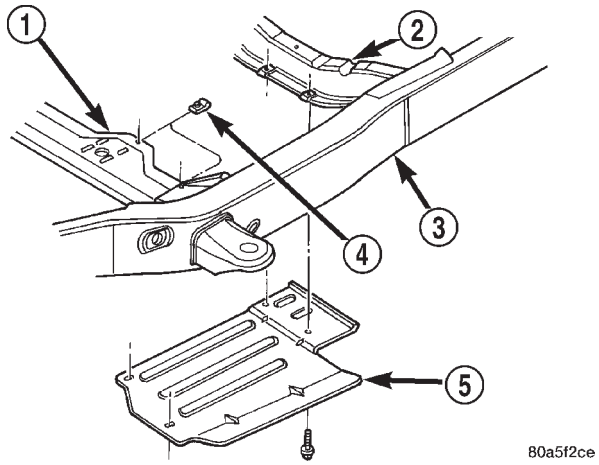


Fig. 9 Transfer Case Skid Plate

1 – TRANSMISSION CROSSMEMBER
2 – TORSION BAR CROSSMEMBER
3 – FRAME
4 – U-NUT
5 – TRANSFER CASE SKID PLATE

FUEL TANK SKID PLATE—4WD VEHICLES

REMOVAL

(1) Position a support under the skid plate.

(2) Remove the nuts that attach the skid plate to the fuel tank crossmember and the frame crossmember (Fig. 10).

(3) Remove the screws that attach the skid plate to the support bracket and the frame side rail.

(4) Remove the support and the skid plate from the vehicle.

INSTALLATION

(1) Position and support the skid plate under the fuel tank.

(2) Install the nuts to attach the skid plate to the fuel tank crossmember and the frame crossmember. Tighten the nuts with 41 N·m (30 ft. lbs.) torque.

REMOVAL AND INSTALLATION (Continued)

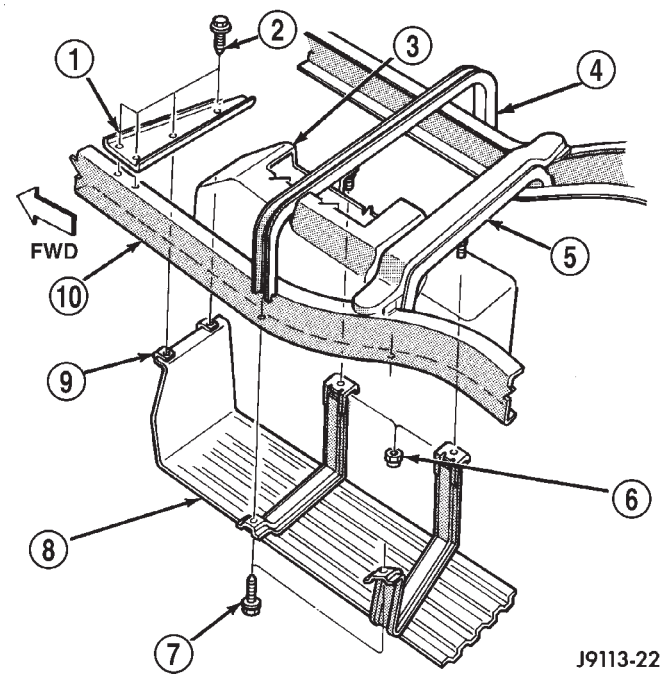


Fig. 10 Fuel Tank Skid Plate—4WD Vehicles

1 – SKID PLATE SUPPORT BRACKET
2 – SCREW
3 – FUEL TANK
4 – FUEL TANK CROSSMEMBER
5 – FRAME CROSSMEMBER
6 – LOCK NUT
7 – SCREW
8 – SKID PLATE
9 – U-NUT
10 – FRAME RAIL

(3) Install the screws to attach the skid plate to the frame side rail and the support bracket. Tighten the screws with 23 N·m (200 in. lbs.) torque.

(4) Remove the support from under the skid plate.

SPARE TIRE WINCH

REMOVAL

(1) Remove spare tire.

(2) Remove bolts attaching spare tire winch to crossmember (Fig. 11).

(3) Disengage clip attaching extension tube to spare tire winch (Fig. 12).

(4) Separate spare tire winch from vehicle.

INSTALLATION

(1) Position extension tube on spare tire winch and engage clip.

(2) Position spare tire winch on vehicle.

(3) Install bolts attaching spare tire winch to spare tire bracket.

(4) Install spare tire.

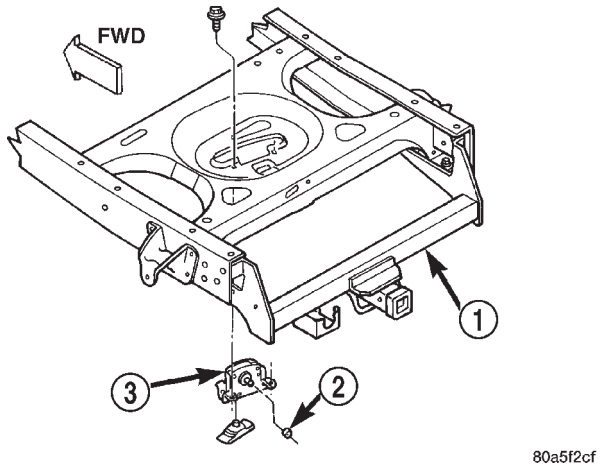


Fig. 11 Spare Tire Winch

1 – TRAILER HITCH
2 – CAP
3 – SPARE TIRE WINCH

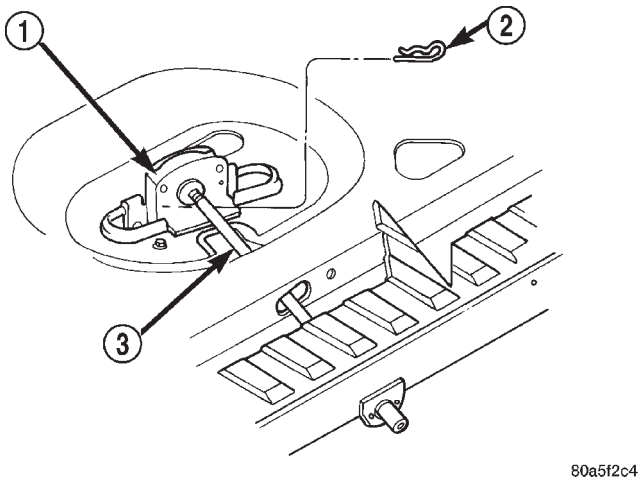


Fig. 12 Extension Tube

1 – WINCH
2 – PIN
3 – WINCH ACTUATOR EXTENSION TUBE

TRAILER HITCH

REMOVAL

(1) Support trailer hitch on a suitable lifting device.

(2) Remove fasteners attaching trailer wiring connector to trailer hitch, if equipped.

(3) Remove bolts attaching trailer hitch to frame rails (Fig. 13).

(4) Separate trailer hitch from vehicle.

INSTALLATION

(1) Position trailer hitch on vehicle.

REMOVAL AND INSTALLATION (Continued)

(2) Install the bolts attaching trailer hitch to frame rails and remove lifting device. Tighten to 108 N·m (80 ft. lbs.) torque.

(3) Install fasteners attaching trailer wiring connector to trailer hitch, if equipped.

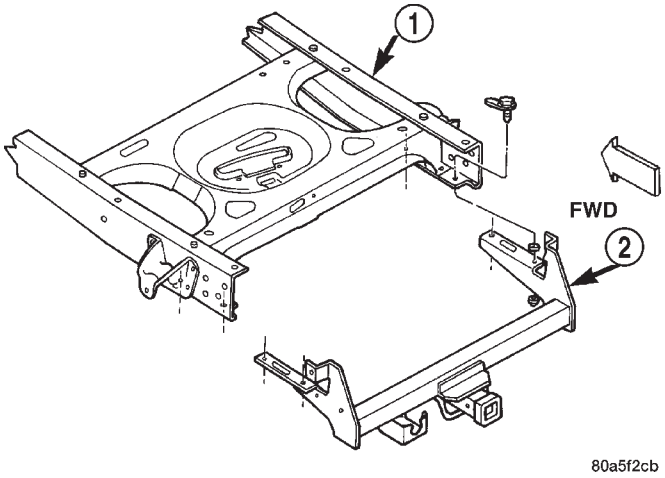


Fig. 13 Trailer Hitch

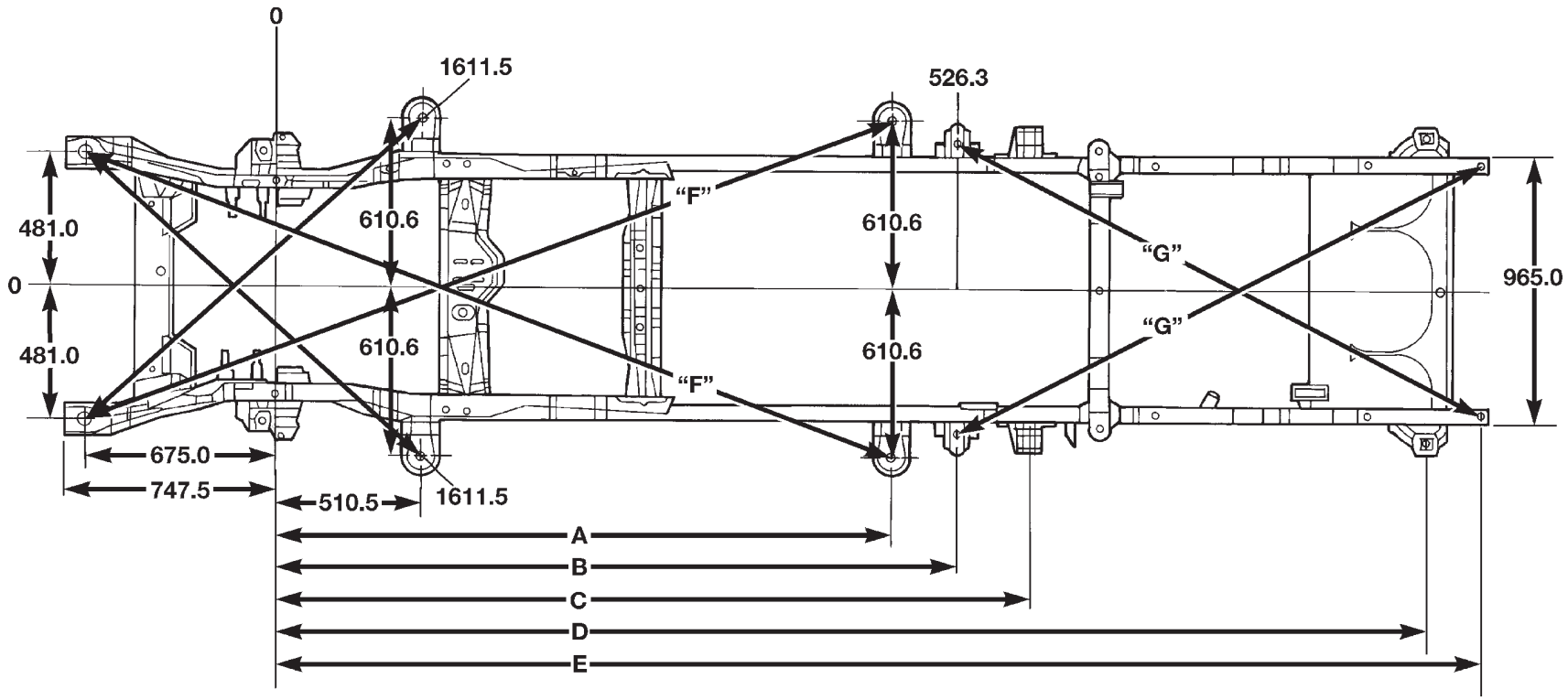
1 – FRAME
2 – TRAILER HITCH

SPECIFICATIONS

FRAME DIMENSIONS

All dimensions are listed in millimeters.

4X4 FRAME TOP VIEW



WHEEL BASE	4X2 4X4	DIMN A	DIMN B	DIMN C	DIMN D	DIMN E	DIMN F	DIMN G
112	4X4	1674.8	1901.0	2159.3	3539.4	3738.5	2591.0	2081.7
124	4X4	1674.8	1901.0	2464.0	3844.2	4208.5	2591.0	2506.1
131	4X4	2156.7	2383.0	2641.9	4022.0	4220.5	3034.9	2081.7

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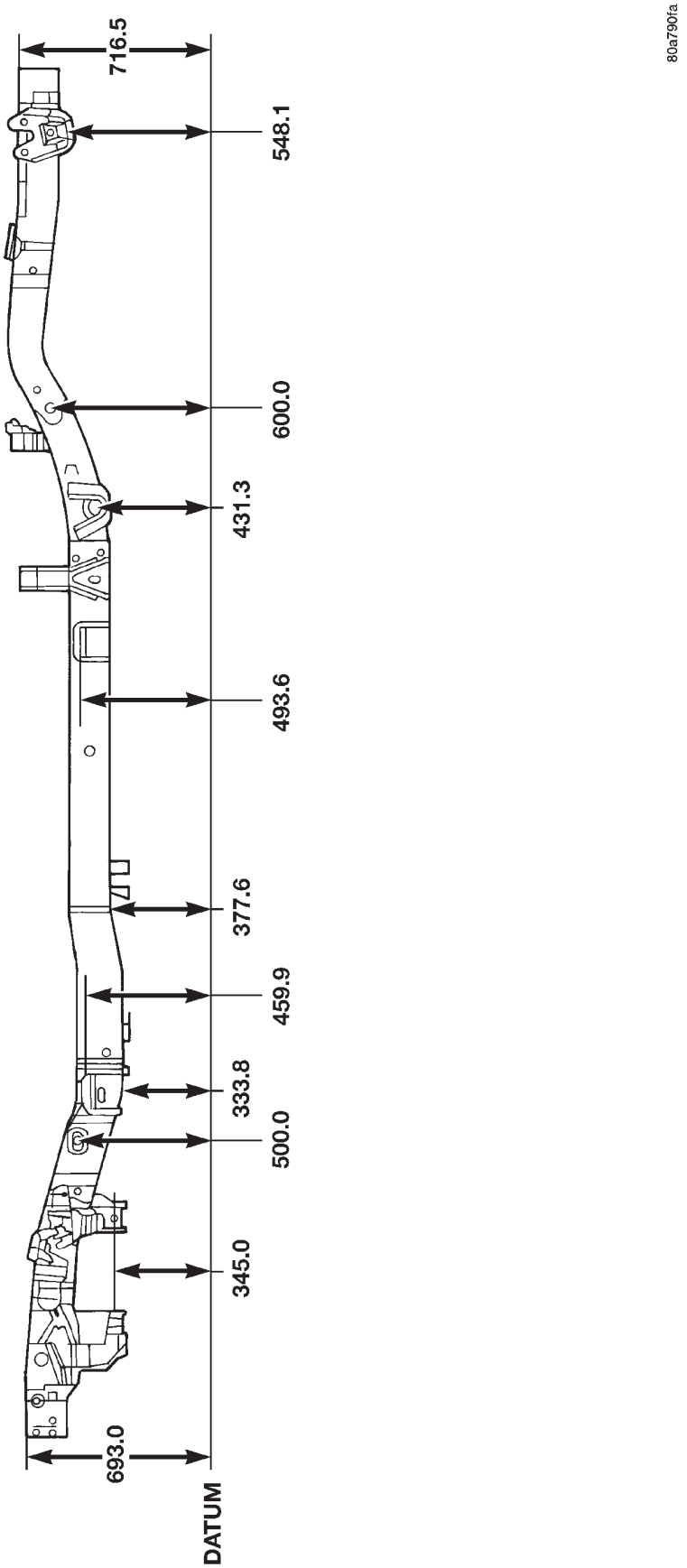
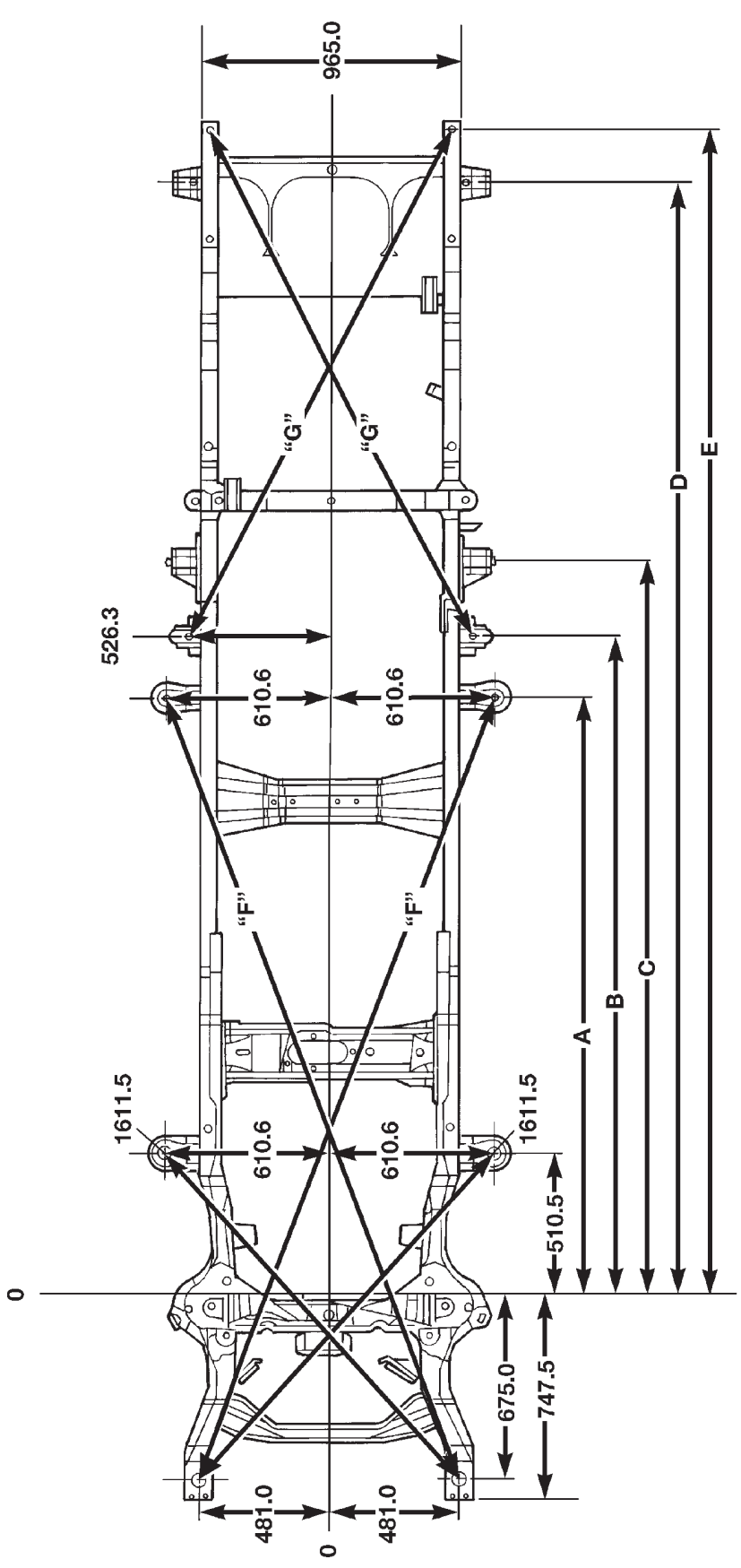
SPECIFICATIONS (Continued)

4X4 FRAME SIDE VIEW



SPECIFICATIONS (Continued)

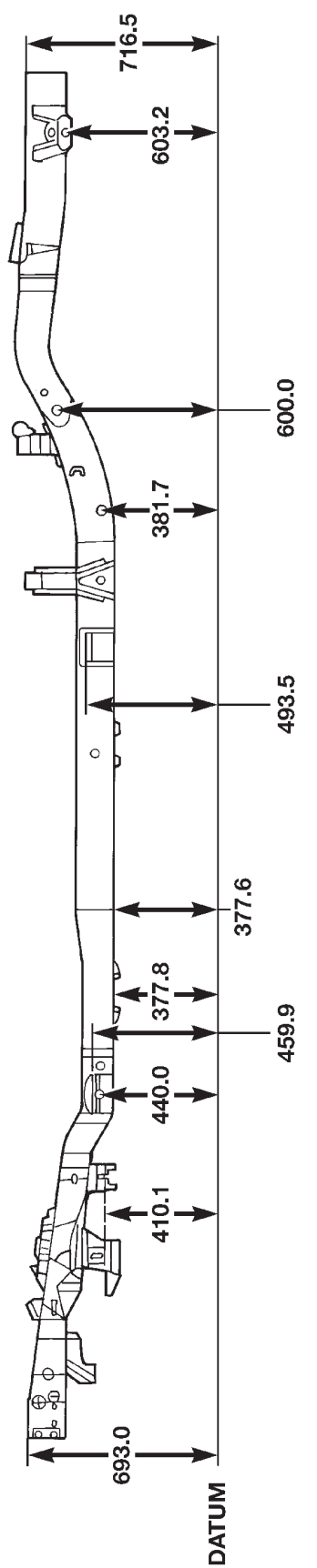
4X2 FRAME TOP VIEW



WHEEL BASE	4X2 4X4	DIMN A	DIMN B	DIMN C	DIMN D	DIMN E	DIMN F	DIMN G
112	4X2	1674.8	1901.0	2176.8	3539.5	3738.5	2591.0	2081.7
124	4X2	1674.8	1901.0	2481.6	3844.3	4208.5	2591.0	2506.1
131	4X2	2156.7	2383.0	2659.5	4022.1	4220.5	3034.9	2081.7

SPECIFICATIONS (Continued)

4X2 FRAME SIDE VIEW



SPECIFICATIONS (Continued)

TORQUE SPECIFICATIONS

DESCRIPTION	TORQUE
Cab bolts	81 N·m (60 ft. lbs.)
Front axle skid plate-to-front x-member bolt	23 N·m (17 ft. lbs.)
Front axle skid plate-to-trans x-member bolt	23 N·m (17 ft. lbs.)
Front bumper brkt-to-frame nut	94 N·m (70 ft. lbs.)
Front bumper outer brace bolt	94 N·m (70 ft. lbs.)
Fuel tank skid plate to x-member nut	41 N·m (30 ft. lbs.)
Fuel tank skid plate to side rail screws	23 N·m (200 in. lbs.)
Rear bumper-to-brace nut	94 N·m (70 ft. lbs.)
Rear bumper brace-to-brkt nut	94 N·m (70 ft. lbs.)
Rear bumper brkt-to-frame nut	94 N·m (70 ft. lbs.)
Transfer case skid plate-to-x-member bolt	23 N·m (17 ft. lbs.)
Trailer hitch nut	108 N·m (80 ft. lbs.)